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**Solvothermal Syntheses, Structures, and Magnetic Properties of
Three Cobalt Coordination Polymers Constructed From
Naphthalene-1,4-dicarboxylic acid and Bis(imidazole) Linkers**

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Abstract

Three new Co(II) coordination polymers with formulas of $\{[\text{Co}_2(\mathbf{L}^1)(1,4\text{-NDC})_2] \cdot 3\text{H}_2\text{O}\}_n$ (**1**), $[\text{Co}_3(\mathbf{L}^2)_2(\text{HCOO})_2(1,4\text{-NDC})_2]_n$ (**2**) and $[\text{Co}_2(\mathbf{L}^2)(\mu_3\text{-OH})(1,4\text{-NDC})_{1.5}]_n$ (**3**) (1,4-H₂NDC = Naphthalene-1,4-dicarboxylic acid, \mathbf{L}^1 = di(1*H*-imidazol-1-yl)methane, \mathbf{L}^2 = 1,4-di(1*H*-imidazol-1-yl)benzene) were solvothermal synthesized from 1,4-H₂NDC with the aid of three different length-controllable auxiliary ligands and fully characterized. Their structures are determined by single-crystal X-ray diffraction, IR spectra, elemental analysis, powder X-ray diffraction and thermogravimetric analysis. Complexes **1** and **3** display 3D framework structures, corresponding to a 6-connected (4¹²·6³) net, a 8-connected (4²⁴·5·6³) net, respectively. However, it

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